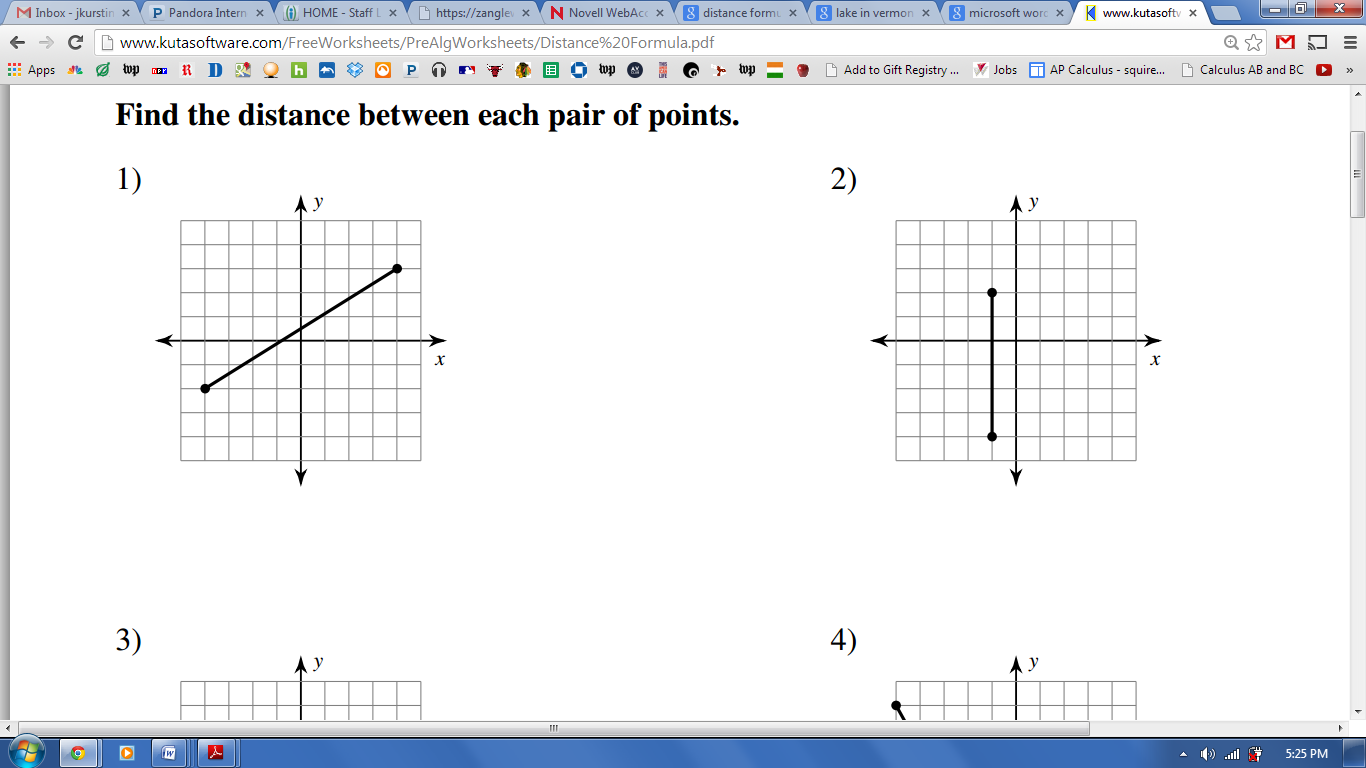
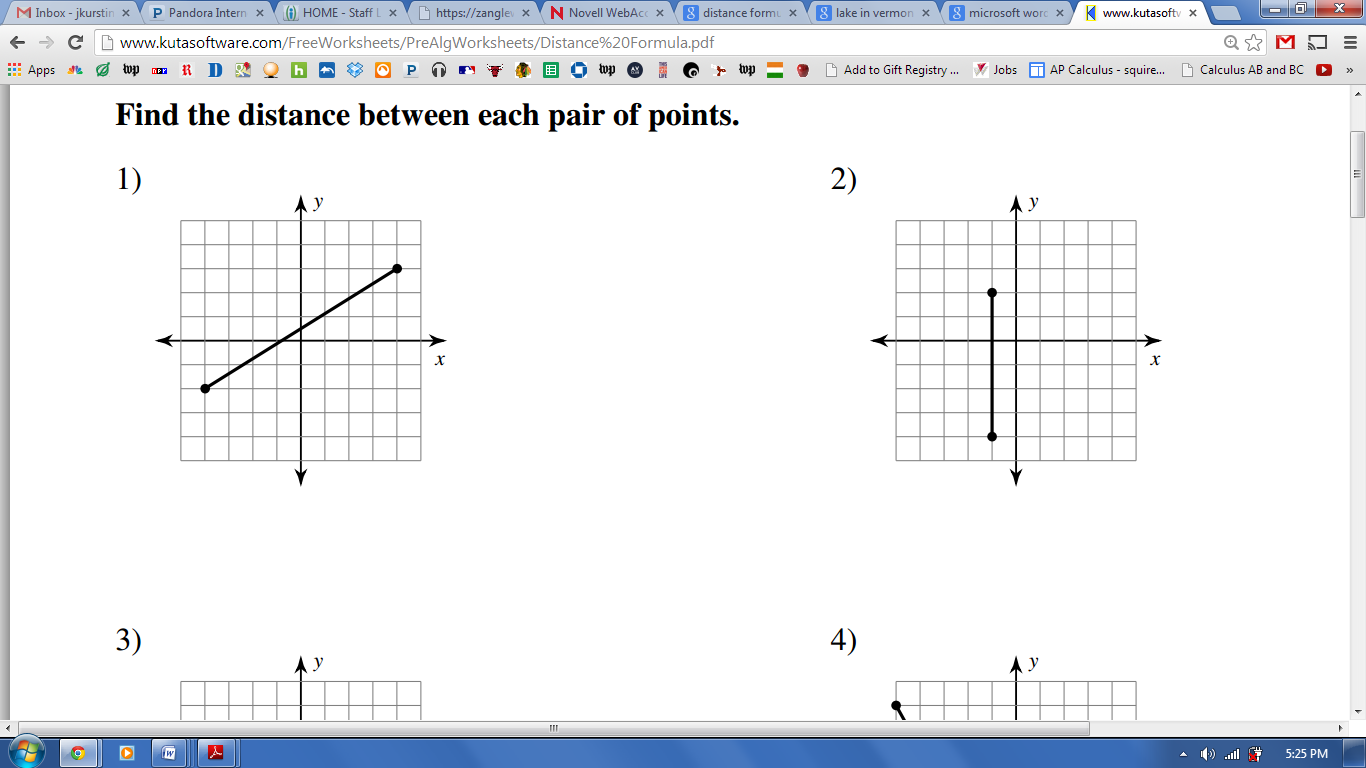
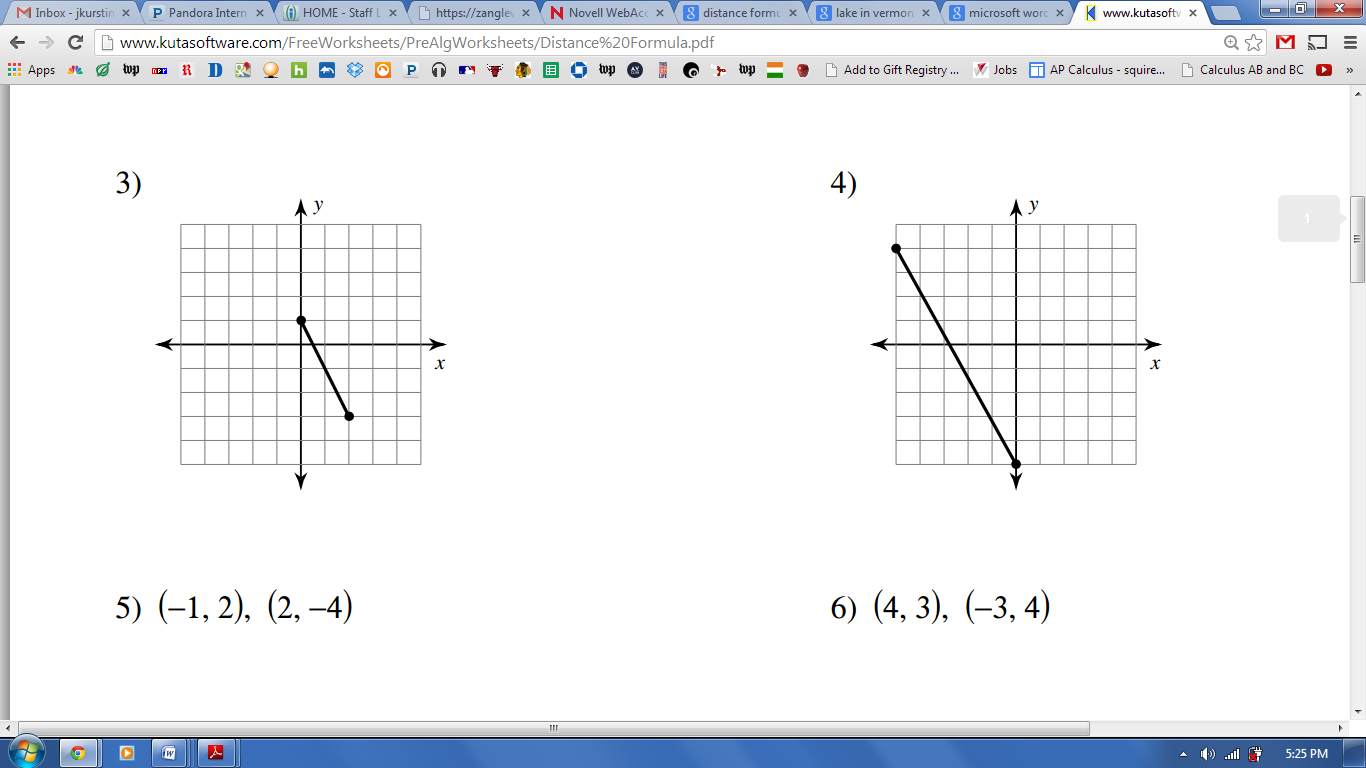
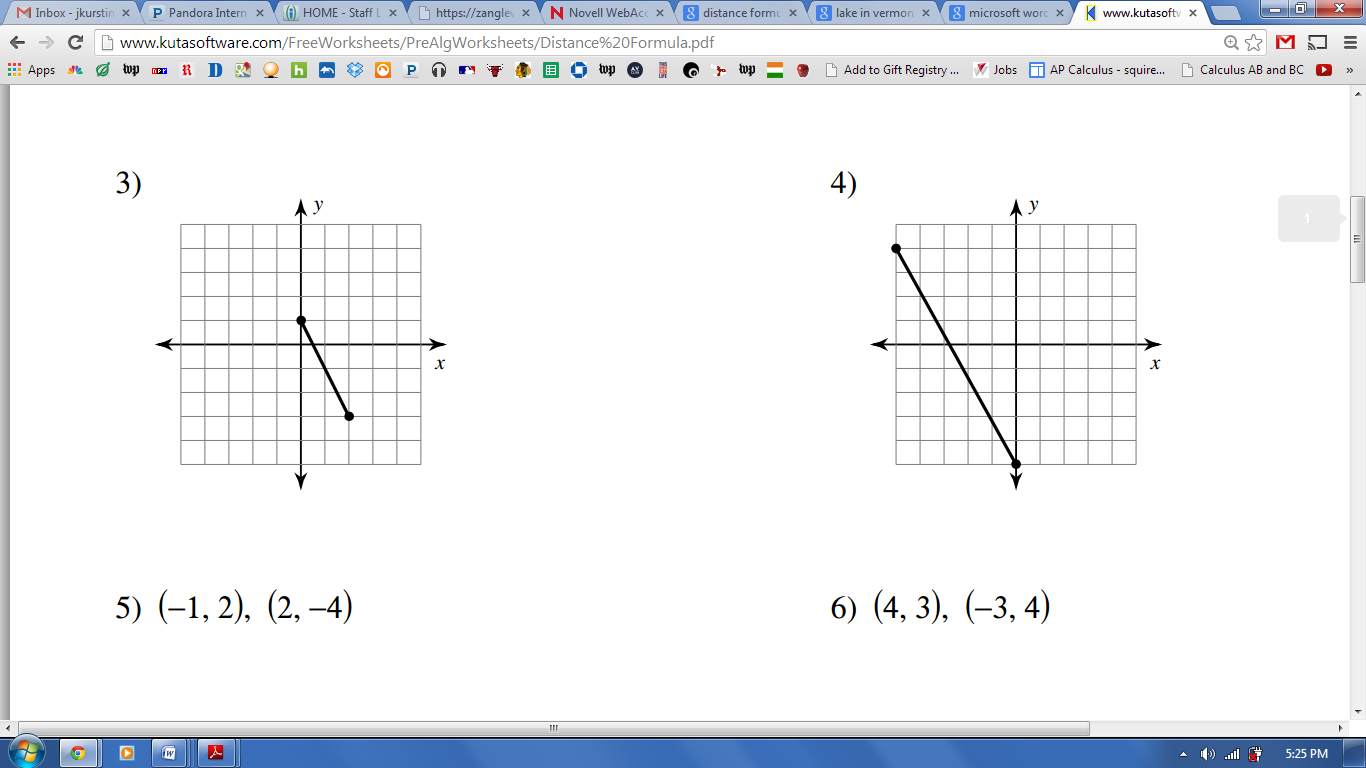
Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_ Per.: \_\_\_\_\_\_\_\_

**1.4 Distance Formula: Finding the Distance Between Two Points**

**Part 1: What is the length of the line on the following graphs?**

1.)  2.) 

3.)  4.) 

5.)  6.) 

**Part 2: Let’s look for patterns.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Points*** | ***Graph*** | ***Horizontal Leg (a)*** | ***Vertical Leg***  ***(b)*** | ***Distance (c)*** |
| and | http://mathbits.com/MathBits/StudentResources/GraphPaper/10x10.gif |  |  |  |
| and | http://mathbits.com/MathBits/StudentResources/GraphPaper/10x10.gif |  |  |  |
| and | http://mathbits.com/MathBits/StudentResources/GraphPaper/10x10.gif |  |  |  |

How could you find based on the given points (without graphing)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How could you find based on the given points (without graphing)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| and | http://mathbits.com/MathBits/StudentResources/GraphPaper/10x10.gif |  |  |  |

**Part 3: Explaining the distance formula.**

**Part 4: Using the distance formula.**

**Find the distance in between each set of points:**

7.) and 8.) and

9.) and 10.) and

11.) and 12.) and

13.) ***Think about it….*** *Does it matter the order in which we subtract the x-values or y-values? Why or why not? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 5: Applying the distance formula**

14.) Determine if .

P:

Q:

R:

15.) Determine if .

P:

Q:

R:

16.) Determine if .

P:

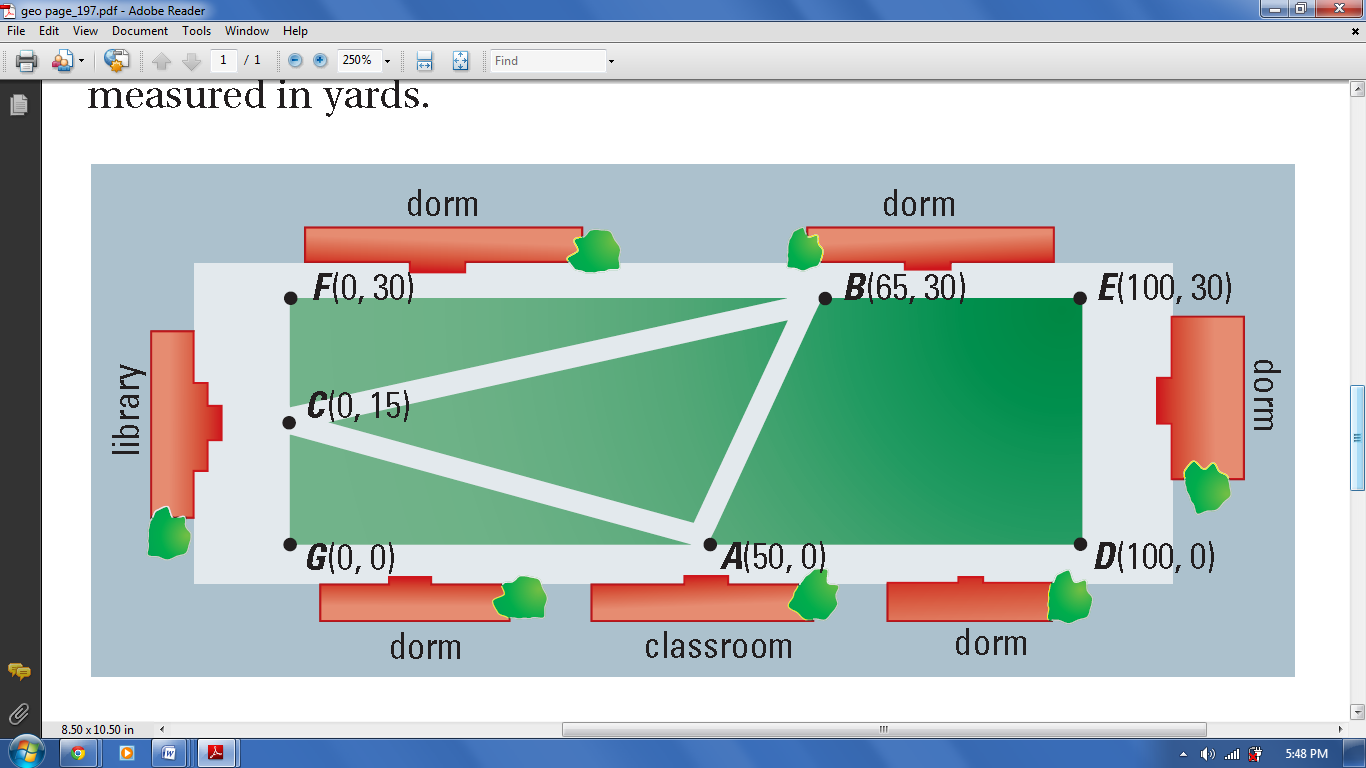
Q:

R:

Sidewalks along the edges of a campus connect buildings as shown below. Some students use the diagonal sidewalks that cut across the campus. All measurements are in yards.

edge

diagonal

******

17.) Find the total distance from A to D to E to F to G to A if you have to walk around the edge.

18.) Find the total distance from A to B, B to C, and C to A if you walk across the diagonal sidewalks.

19.) How much shorter is it to take the diagonal sidewalks instead of the edge?